

ABSTRACT OF THE DISCLOSURE

A reverse spreading device is provided which is capable of performing timing detection and channel estimation even in a large  
5 frequency offset environment without great increases in its circuit scale and its power consumption and of expanding a range being within the AFC (Automatic Frequency Control) for the frequency offset. A multiplication is made by multipliers between complex base band signals and spread codes and then resulting n-pieces  
10 of multiplied values are integrated by m-pieces of adders for every k-pieces of multiplied values to produce m-pieces of complex intermediate signals before obtaining complex symbols. A probability of correct synchronization is increased by providing a frequency offset to m-pieces of complex intermediate signals  
15 using phase rotators to compensate for rotation within one symbol period and to obtain a great spreading gain. A range being within the ACF for the frequency offset is expanded since a phase error is corrected before a production of the complex symbol signals.

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